Energy Efficiency Potential by Sector in MENA

Energy efficiency matters in MENA because the next wave of power demand is coming from daily operating needs: keeping buildings cool, running industrial facilities, and producing water. These are not temporary loads; they are tied to climate, urban growth, water scarcity, and economic expansion.

Energy efficiency can support planning supply build-out more strategically by reducing demand at the source, especially during peak hours. With the International Energy Agency (IEA) pointing to cooling and de-salination as major contributors to electricity-demand growth through 2035, energy efficiency becomes a practical system-planning tool: lower peak pressure, less fuel burn, and reduced subsidy burden.

Sectors	Key Takeaways	Ranking
Buildings/Cooling	This is the highest-priority opportunity because air conditioning directly drives both annual electricity use and peak load. In hot regions, inefficient cooling drives simultaneous stress on generation capacity, grid infrastructure, and fuel supply. The IEA reports that average air-conditioner efficiency in MENA is less than half that of Japan, and better air-conditioner efficiency could reduce peak-demand growth by 35 gigawatts by 2035.	↗
Industry	Industry ranks second because it is a large, concentrated energy user and a major growth driver as MENA expands manufacturing, petrochemicals, logistics, mining, data centres, and hydrogen-related activity. The World Bank's MENA efficiency work identifies industry, residential, and services as the key electricity-intensive end-use sectors, with industry offering large savings potential and stronger commercial motivation to reduce energy costs.	↗
Water/ Desalination	Desalination is structurally important because water scarcity is worsening and desalinated water output is set to rise sharply. MENA produced 12 billion cubic metres of desalinated water in 2024, and production is projected to triple by 2035.	→
Transport	Important, but electricity-efficiency impact is slower because much of the sector is still fuel-based; impact rises with electrification.	→
Public Service and Agriculture	It save energy through practical upgrades: efficient public buildings, LED street lighting, municipal pumping, improved irrigation, and right-sized pump systems. For MENA, the key is to bundle these scattered assets into programs that cut electricity use, water losses, and public operating costs.	→

** Ranking is based on sectors having the highest current and projected electricity demand.*

MENA Electricity Demand Snapshot

3x
Electricity demand growth, 2000–2024

+50%
Projected demand growth by 2035

~1/2
Peak electricity demand already tied to cooling

~40%
2035 demand growth from cooling and desalination

35 GW
Peak-demand growth, efficient ACs could avoid

$44Bn
Power-sector investment in 2024; +50% by 2035

Energy Efficiency Measures by Sector in MENA

MENA can meet future demand more efficiently by reducing energy consumption at the source rather than expanding supply alone.

Sectors	Energy Efficiency Measures	Case Studies	MENA application
Buildings & cooling HIGH	Tighten AC standards; pair with envelope retrofits and targeted rebates.	AC efficiency could avoid 35 GW of peak growth by 2035. Saudi Arabia's split-air-conditioner Minimum Energy Performance Standard increased by 57% after efficiency standards were introduced.	Efficient cooling helps MENA absorb urban growth with less strain on generation capacity, grid infrastructure, and fuel supply.
Industry HIGH	Move large sites from audits to energy- intensity targets and continuous monitoring.	Saudi targets industrial efficiency across key sectors; ADNOC delivered ~900 $ktCO_2e$ savings from efficiency in 2023.	The best industrial savings come when efficiency becomes a performance metric, not a voluntary audit exercise.
Water & desalination MED	Make high-efficiency SWRO, energy recovery and efficient pumping the default.	Dubai's Hassyan reverse-osmosis project is designed at 180 million imperial gallons per day, with reported energy use of 2.9 kilowatt-hours per cubic metre.	Prevents water security from becoming a high-load lock-in.
Transport MED	Cut energy per passenger-km before electrification adds new grid load.	Dubai Roads and Transport Authority reported 36 green initiatives in 2021, saving 68 million kilowatt-hours, 21 million litres of gasoline, 1.8 million litres of diesel, and AED 85 million.	Combines modal shift, operations and managed charging.
Public services MED	Bundle public buildings, lights and pumps into retrofit pipelines.	Jordan LED project targets 50% lower streetlighting energy use.	Public assets are fragmented, but governments can aggregate them into bankable retrofit programmes.
Agriculture & irrigation MED	Link efficient irrigation and solar pumping to groundwater controls.	Morocco's water-saving irrigation programme targets modernisation across around 550,000 hectares.	Savings scale only when tied to water productivity and governance.